



MEETING SUMMARY

October 4, 2016
9:30 AM -12:00 PM
195 North 1950 West, Great Salt Lake West

PURPOSE: Utah Model Group Meeting – Collaboration with University of Utah for Water Quality Model Development

PRESENT:

Name	Organization
Suzan Tahir	DWQ
Carl Adams	DWQ
Scott Daly	DWQ
Sandy Wingert	DWQ
Nicholas von Stackelberg	DWQ
LaVere Merritt	Consultant
Theron Miller	JR/FBWQC
Dave Richards	Consultant
Mitch Hogsett	Consultant
Mike Mills	JSRIP
Ramesh Goel	U of U
Julie Kinsey	EPA
David Barlow	Timp Special Service District
Chris Keleher	UDNR
Garland Mayne	South Valley Sewer District
Jon Adams	Timp Special Service District
Mark Ogren	Provo City
Carly Hansen	U of U
Rich Mickelsen	Provo City
Michael Barber	U of U
Sarah Hiners	U of U

I. Welcome and Introductions

II. DWQ Model Selection (Nicholas von Stackelberg)

- a. Nick presented an overview of the Utah Lake model selection process (Utah Lake Nutrient Model Selection)
 - i. The model selection process was guided by the Utah Lake Model Stakeholder Subgroup
 - ii. Discussion of key model functions for Utah Lake
 - iii. Final model selection report was delivered to stakeholders on July 12, 2016
- b. Model selection resulted in coupling Water Quality Analysis Simulation Program (WASP) and Environment Fluid Dynamics Code (EFDC)
 - i. Ability to capture physical, chemical and lake dynamics
 - ii. Three-dimensional hydrology
- c. Discussion of collaboration with the University of Utah for model development

- i. Water quality and hydrodynamic model development for the Jordan River and Utah Lake watersheds
- ii. Model suite will have the ability to predict watershed management impacts on in-lake water quality
- iii. Partnering with the U of U will avoid development of competing models by multiple entities
- iv. U of U would deliver calibrated model for use on Utah Lake numeric nutrient criteria development

Attendee Comments

- i. Miller: How will the stakeholder subgroup interact with model development team?
- ii. Richards: How will zooplankton and phytoplankton communities be incorporated as part of the food web model?

III. University of Utah EPA Model Presentation

- a. Mike Barber presentation of University of Utah's EPA funded project (*Prediction of Nonlinear Climate Variations Impacts on Eutrophication and Ecosystem Processes and Evaluation of Adaptation Measures in Urban and Urbanizing Watersheds*)
 - i. Introduction to research team
 - ii. Study goals and objectives
 - iii. Background and research hypotheses
 - iv. Research approach and activities
 - v. Expected results, outputs, and outcomes.
- b. Sensitivity Analysis to be completed in 6 months
- c. Currently attempting to reproduce Jordan River QUAL2Kw model results in WASP
- d. Entire watershed to be modeled
- e. Macrophytes included in WASP; however, high uncertainty
- f. UofU model will not focus on macrophytes, macroinvertebrates, fish, birds

Attendee Comments

- i. Richards: Does UofU's definition of water quality include physical, chemical and biological integrity? What is the definition of eutrophication?
- ii. Miller: How will the existing Jordan River Qual2K model be integrated with WASP?
- iii. Miller: How will we determine sensitive parameters and integrate field data?
- iv. Keleher: How will macrophytes be incorporated?
- v. Miller/Merritt: Can phosphorus mineralization and resorption be predicted in the model?
- vi. Merritt: Utah Lake quickly reaches nutrient saturation. Nutrients not primary driver. Light/turbidity is limiting and phosphorus is super-saturated. 90% removal of P in Utah Lake through mineralization.
- vii. Merritt: Utah Lake Nutrient Balance Report to be released soon.
- viii. Goel: P sorption dynamics both chemically and biologically mediated
- ix. Goel: Bioavailability of P released into solution is unknown.
- x. Merritt: Model will improve understanding of system. Unrealistic goal to develop model to determine nutrient endpoints in short time frame.

IV. Data Collection to Support Model Parameterization (Discussion)

- a. DWQ will initiate process and stakeholder involvement to develop study plan to prioritize Water Quality Board funding on data collection for key model parameters
- b. Data collection coordination through Suzan Tahir at DWQ

V. *Future Modeling Group Participation*

- a. Group members want to be involved in data collection
- b. Combine Jordan River and Utah Lake modeling groups?

VI. *Action Items*

- 1. **University of Utah:** Provide list of model parameters to the subgroup
- 2. **DWQ/University of Utah:** Identify processes best simulated outside of WASP
- 3. **University of Utah:** Provide sensitivity analysis results to guide data collection and parameterization
- 4. **DWQ:** Coordinate stakeholder meeting for developing study plan.

NEXT MEETING: January 10th, 2017